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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/566,794

07/02/2007

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EXAMINER

BERNSTEIN, DANIEL A

ART UNIT

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3743

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/566,794	Applicant(s) HUSTAD, JOHAN EINAR	
	Examiner DANIEL A. BERNSTEIN	Art Unit 3743	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 July 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 5-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 5-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 31 January 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. Claim 5-8 rejected under 35 U.S.C. 103(a) as being unpatentable over US 4,964,397 to Purcell et al. in view of NO 63947 to Cappelen and US 4,502,395 to Barnett.

In reference to claim 5

Purcell discloses an afterburner device (intermediate wall member 40 which is installed into the firebox 22) supplying fresh, heated air to an upper zone (openings 80 deliver air to the upper zone of 22) of **a combustion chamber (22) in an existing traditional** stove (Purcell teaches installing the afterburner in an existing fireplace or stove, Col. 3 lines 10-18), **the afterburner device comprising:** a plate (72, see Fig. 5).

Purcell does not teach a **substantially flat** plate (72, see Fig. 5) **assembly having a fold along each edge of the plate assembly, wherein the plate assembly is configured to** form a chamber when installed on the inner side of a side or rear wall of the existing traditional stove.

Cappelen teaches a device that is folded to form a chamber when installed on the inner side of a side or rear wall of an existing traditional stove (see Fig. 1, 2 and 3 of Cappelen where chamber 16 is formed by a folded plate) in which the flow canal is created between the folded plate (folded plate at 15 and the rear wall at 7 form the flow canal as can be seen in Fig. 1 of Cappelen) and a wall of the existing stove. The plate 15 of Cappelen is substantially flat and the plate 15 is folded along each edge as can be seen in Fig. 1 and 2.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to combine Purcell with Cappelen for the purpose of integrating the afterburning device on a side wall of an existing stove. Cappelen teaches that it is well known to someone of ordinary skill in the art to construct an afterburner device for a stove out of a front plate and a rear wall of the stove. It would have been obvious to use the rear wall of the stove as the back wall of the afterburner because it would minimize the complexity of the device and reduce the cost by using less material to construct the afterburner.

Purcell discloses that 40 has a chamber (air space 74, Fig. 5). Purcell does not teach that the existing traditional stove (20) is provided with at least one secondary air aperture providing communication between ambient air and the chamber near the bottom of said chamber.

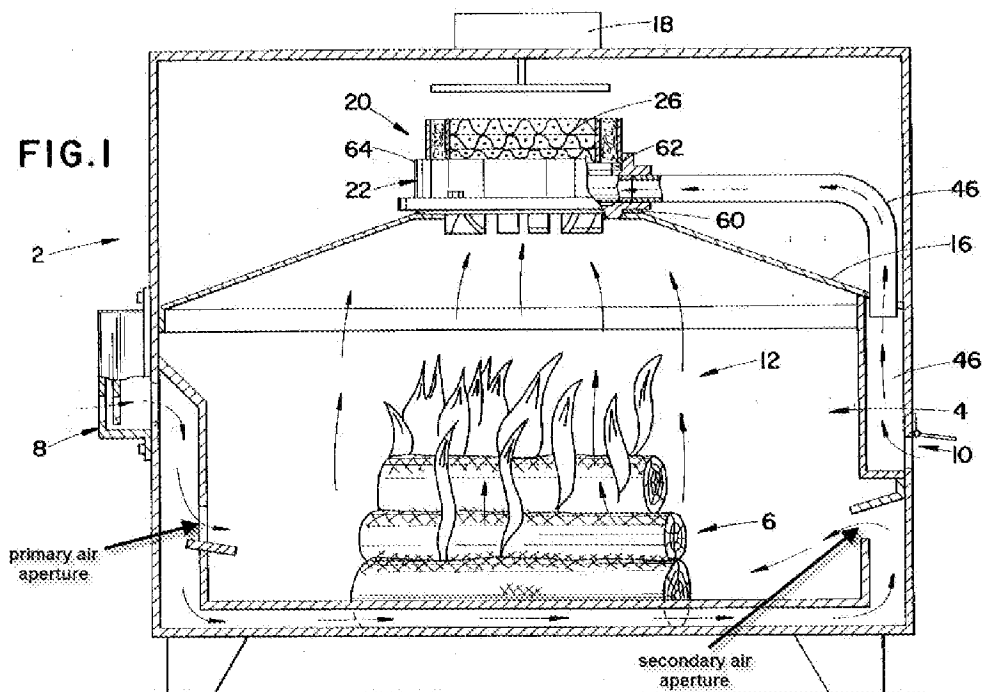
Barnett teaches a combustion chamber that has at least one secondary air aperture (secondary air aperture, see annotated Fig. 1 below) providing communication between ambient air (ambient air enters at 8 and is introduced through the secondary air aperture of Barnett substantially towards the bottom of the chamber) and the chamber near the bottom of said chamber.

Purcell teaches that the plate **assembly** is provided with at least one first hole (openings 76 which are in communication with 22) in communication with said combustion chamber (22) near the bottom of said chamber (the holes 76 are located towards the bottom of the chamber) **and wherein the plate assembly includes a first plate and a second plate** (see Fig. 8 where Purcell shows a first plate at 84 and a

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second plate at 86), **the first plate overlaps a portion of the second plate (84 overlaps a portion of 86).**

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to combine Purcell with Barnet for the purpose of introducing a second stream of air so that more air could be delivered through holes 76 of Purcell. All of the claimed elements were known in prior art and one skilled in the art could have combined the elements as claimed by known methods with no change in their respective functions, and the combination would have yielded predictable results to one of ordinary skill in the art at the time of the invention.



In reference to claim 6

Purcell in view of Barnett discloses the afterburner device according to claim 5, wherein the plate **assembly** has at least one second hole (see Fig. 4 where there are six holes 80 in the plate 40A) in communication with said upper zone (when installed in a stove, 40A would be capable of delivering air to the upper zone of the stoves combustion chamber) of the combustion chamber near the top of said chamber, whereby air drawn in through the at least one secondary air aperture is pre-heated while rising up behind the plate **assembly** (when air enters holes 76 from behind the plate, see Fig. 5, the air would inherently preheat due to the fact that 40A is hot and in close proximity to primary combustion in the stove) within said chamber, and is expelled through the at least one second hole (air exits holes 80 see Fig. 4) into the upper zone of the stove's combustion chamber (see Fig. 2 where 40 is shown installed in a stove, based on Fig. 2, air would be delivered to the upper zone of the combustion chamber).

In reference to claim 8

Purcell in view of Barnett discloses the afterburner device according to claim 5, wherein the **first plate (84) and the second plate (86) of the plate assembly** (see Fig. 8) can be mutually displaced to provide an adjustable dimension in a lateral direction (90 and 94) when installed, for adaptation to stoves of different sizes (Col. 5 lines 56-68 and Col. 6 lines 1-10).

2. Claim 7 rejected under 35 U.S.C. 103(a) as being unpatentable over Purcell in view of Barnett and in further view of NO 63947 to Cappelen (Cappelen).

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In Reference to Claim 7

Purcell in view of Barnett the afterburner device according to claim 5, but does not teach that at least one first hole establishes and maintains a pilot flame.

Cappelen teaches a plate (15) that is provided with holes (18) near a folded end of a plate (Fig. 5) where the holes (18) are arranged towards the bottom edge when installed (see Fig. 3) in order to sustain combustion over the furnace chamber's entire length (see Cappelen translation page 4, third paragraph).

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to incorporate the holes (18) of Cappelen arranged towards the bottom edge of the plate of Purcell for the purpose of sustaining combustion over the furnace chamber's entire length as explicitly taught by Cappelen. Since the holes would be positioned in the same location as applicant's, they would inherently establish and maintain a pilot flame.

3. Claim 9 rejected under 35 U.S.C. 103(a) as being unpatentable over Purcell in view of Cappelen.

In Reference to Claim 9

Purcell discloses a method of placing an afterburner device in an existing stove (Purcell shows an afterburner apparatus in Fig. 8 that is designed to be fitted into preexisting stoves, Col. 3 lines 10-14) for supplying fresh heated air (40 moves heated air from the back of the firebox to the top region of the combustion chamber for the purpose of secondary combustion) into a combustion chamber (combustion chamber at

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22, Fig. 2) of the existing stove, the method comprising: installing a folded plate (Purcell shows installing two folded plates in an existing stove, see Fig. 2 and 8).

Purcell does not teach that the folded plate is installed into the existing stove such that a flow canal is created between the folded plate and a wall of the existing stove.

Cappelen teaches a device that is folded to form a chamber when installed on the inner side of a side or rear wall of an existing traditional stove (see Fig. 1, 2 and 3 of Cappelen where chamber 16 is formed by a folded plate) in which the flow canal is created between the folded plate (folded plate at 15 and the rear wall at 7 form the flow canal as can be seen in Fig. 1 of Cappelen) and a wall of the existing stove.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to combine Purcell with Cappelen for the purpose of integrating the afterburning device on a side wall of an existing stove. Cappelen teaches that it is well known to someone of ordinary skill in the art to construct an afterburner device for a stove out of a front plate and a rear wall of the stove. It would have been obvious to use the rear wall of the stove as the back wall of the afterburner because it would minimize the complexity of the device and reduce the cost by using less material to construct the afterburner.

Purcell discloses using another back plate to form the afterburner device. Purcell discloses an inlet air pathway (air space 74, Fig. 5) by forming a hole (Purcell shows holes 76 in the back side of 40 and holes 80, which deliver air for secondary

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combustion). Purcell does not teach forming a hole or a slit in the wall of the existing stove.

Purcell discloses wherein the inlet air pathway (holes 76) is connected to primary airflow outlets (holes 80) in the folded plate (40) via the flow canal (74) to allow air from the rear of a firebox of the existing stove to circulate into the combustion chamber via the inlet air pathway, the flow canal and the primary airflow outlets (40 delivers air from the back of the firebox to the top region of the combustion chamber for the purpose of secondary combustion).

Purcell does not teach that the secondary combustion air is taken from an exterior region of the existing stove.

Cappelen teaches a valving means (20, Fig. 1) that takes secondary combustion air from the outside environment to the afterburner device. Cappelen also teaches a hole at 17 where the secondary combustion air enters the afterburner device.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to combine Purcell with Cappelen for the purpose of delivering secondary combustion air to the retro-fitted afterburner device of Purcell. It is well known to deliver secondary combustion air from outside the stove for use in secondary combustion. It would have been known to someone of ordinary skill in the art that using combustion air from inside the combustion chamber would not be as efficient as delivering fresh air from the outside environment, because the air inside the oven would be hotter and less dense and would also contain some products of combustion. Therefore, it would have been obvious to combine Purcell with Cappelen

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for the purpose of delivering outside secondary combustion air to the afterburner to increase the combustion efficiency.

In Reference to Claim 10

Purcell in view of Cappelen discloses the method of claim 9, further comprising creating a secondary airflow outlet (18, Fig. 1, Cappelen) by forming a hole in a lower portion of the folded plate.

In Reference to Claim 11

Purcell in view of Cappelen discloses the method of claim 10, wherein the hole for the secondary airflow outlet (18, Cappelen) is configured to allow airflow into the combustion chamber in order to establish and maintain a pilot flame (holes 18 maintain a pilot light, see Cappelen translation page 4, third paragraph).

In Reference to Claim 12

Purcell in view of Cappelen discloses the method of claim 9, wherein the circulated air is heated as the air travels through the flow canal (air enters the flow channel 74 and rises due to the heat of the apparatus, then air exits out of holes 80, see Purcell Fig. 2 and 5).

In Reference to Claim 13

Purcell in view of Cappelen discloses the method of claim 9, wherein the inlet air pathway (inlet holes 76, Fig. 4, Purcell) is at a lower end of the flow canal and the primary airflow outlets are at an upper end of the flow canal (outlet holes 80, Fig. 4, Purcell).

In Reference to Claim 14

Purcell in view of Cappelen discloses the method of claim 9, wherein the folded plate comprises a first plate that overlaps a second plate (Purcell discloses multiple folded plates in Fig. 8 in which the plates are adjustable to fit into a preexisting stove, see numerals 90, 92, 94 and 96).

In Reference to Claim 15

Purcell in view of Cappelen discloses the method of claim 14, further comprising adjusting a width (Fig. 8 of Purcell shows adjusting the width of the afterburner) of the folded plate by sliding the first plate over the second plate (the first plate at 84 moves relative to the second plate at 86, see Fig. 8), wherein the width of the folded plate is adjusted prior to installing the folded plate in the existing stove (the afterburner of Purcell is capable of being adjusted before it is installed in the existing stove).

In Reference to Claim 16

Purcell discloses a method of circulating fresh heated air into a combustion (see combustion chamber at 22, Fig. 2) chamber of an existing stove (20), the combustion chamber is enclosed by a first wall, a second wall, a third wall and a fourth wall (Purcell discloses an open fireplace with 3 walls defining the combustion chamber. Purcell does teach that the afterburner device can be installed into a stove, which typically has 4 walls defining a combustion chamber). Purcell does not teach a fourth wall closing the combustion chamber.

Cappelen teaches an afterburner device for a furnace that has a combustion chamber which has four walls defining the chamber (see Fig. 2).

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It would have been obvious at the time the invention was made to a person having ordinary skill in the art to combine Purcell with Cappelen for the purpose of installing the afterburner device of Purcell in an existing stove that has four walls defining the combustion chamber. Clearly, stoves or furnaces with four walls defining a combustion chamber are well known to someone of ordinary skill in the art. Purcell even mentions in Col. 3 lines 10-18 that the apparatus as shown in Fig. 2 is adapted to be installed into existing fireplaces and stoves. Therefore, it would have been obvious to combine Purcell with Cappelen for the purpose of installing the afterburner of Purcell into a stove with four walls.

Purcell discloses the method comprising: providing the existing stove (Purcell shows installing the afterburner device in a fireplace and a stove, Fig. 2 and Col. 3 lines 10-18); forming an airflow chamber (74, Fig. 5). Purcell does not teach forming an airflow chamber on an interior portion of the existing stove by attaching a folded plate to the first wall of the existing stove.

Cappelen teaches a device that is folded to form a chamber when installed on the inner side of a side or rear wall of an existing traditional stove (see Fig. 1, 2 and 3 of Cappelen where chamber 16 is formed by a folded plate) in which the flow canal is created between the folded plate (folded plate at 15 and the rear wall at 7 form the flow canal as can be seen in Fig. 1 of Cappelen) and a wall (the first wall is the back wall of Cappelen) of the existing stove.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to combine Purcell with Cappelen for the purpose of

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integrating the afterburning device on a side wall of an existing stove. Cappelen teaches that it is well known to someone of ordinary skill in the art to construct an afterburner device for a stove out of a front plate and a rear wall of the stove. It would have been obvious to use the rear wall of the stove as the back wall of the afterburner because it would minimize the complexity of the device and reduce the cost by using less material to construct the afterburner.

Purcell discloses wherein the folded plate is spaced from the first wall (the front plate of Purcell is spaced away from the back wall of the combustion chamber, see 40A, Fig. 5 and Fig. 2) and wherein the airflow chamber includes at least one outlet hole at an upper end (holes 80, Fig. 5) of the airflow chamber; forming at least one inlet hole at a lower end (inlet holes 76) of the airflow chamber. Purcell does not teach wherein the inlet hole is formed in the first wall of the existing stove.

Cappelen teaches an inlet hole (17, Fig. 2) that is formed in the first wall of the existing stove, see above.

Purcell discloses allowing air to circulate into the combustion airflow chamber (air enters 74 through holes 76, rises due to heat and exits through holes 80) along an airflow pathway defined by the inlet hole (76), the airflow chamber and the outlet hole (80).

In Reference to Claim 17

Purcell in view of Cappelen discloses the method of claim 16, further comprising heating the circulated air (air enters the flow channel 74 and rises due to the heat of the

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apparatus, then air exits out of holes 80, see Purcell Fig. 2 and 5) as the air travels along the airflow pathway.

In Reference to Claim 18

Purcell in view of Cappelen discloses the method of claim 16, further comprising forming a second outlet hole (18, Fig. 1, Cappelen) at the lower end of the airflow chamber, wherein the second outlet hole is formed at a lower end of the folded plate (18 is located at the lower end of plate 15 as shown in Fig. 3).

In Reference to Claim 19

Purcell in view of Cappelen discloses the method of claim 18, wherein the second outlet hole(18, Cappelen) is configured to allow airflow into the combustion chamber in order to establish and maintain a pilot flame (holes 18 maintain a pilot light, see Cappelen translation page 4, third paragraph).

In Reference to Claim 20

Purcell in view of Cappelen discloses the method of claim 16, wherein the airflow chamber is formed on a side of the existing stove (Cappelen teaches the afterburner device installed on a side of an existing stove, see plate 15 and the side of the stove at 7, Fig. 1).

Response to Arguments

4. Applicant's arguments filed 07/24/2009 have been fully considered but they are not persuasive. The applicant argues that the combination of Purcell in view of Barnett and Cappelen fails to teach the afterburner device as claimed by the applicant. The examiner respectfully disagrees. Purcell teaches an afterburner device for a fireplace or

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stove which is capable of being retrofitted to a preexisting fireplace or stove. Therefore, it is well known to someone of ordinary skill in the art to retrofit a preexisting stove with an afterburner. Secondly, Cappelen teaches an afterburner device that is a folded plate which is integrated on a side wall of the stove. Therefore, it makes sense to combine both Purcell and Cappelen for reasons stated above in the rejection of claim 5. Barnett clearly teaches delivering ambient air to different combustion zones. All three of the references, in combination, teach the limitations as claimed by the applicant.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DANIEL A. BERNSTEIN whose telephone number is (571)270-5803. The examiner can normally be reached on Monday-Friday 8:00 AM - 5:00 PM EDT.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kenneth Rinehart can be reached on 571-272-4881. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

DAB

/Kenneth B Rinehart/

Supervisory Patent Examiner, Art Unit 3743